

Effect of S-adenosylmethionine on human rotavirus RNA synthesis

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The characteristics of human rotavirus-associated RNA polymerase activity have been examined in relation to the effects of ribonucleoside triphosphate analogs and S-adenosylmethionine. These effects were analyzed by testing two forms of activated virus particles: EDTA- and heat-treated virions. The former lack outer shell proteins, and activation by means of heat treatment does not introduce any apparent modification in virion structure. Virus-associated RNA polymerase shows similar properties in both preparations, suggesting that outer proteins are not directly involved in RNA synthesis. Transcription in this virus is specifically dependent on a hydrolyzable form of ATP. Such a requirement is not overcome by preincubation or by the addition of S-adenosylmethionine, suggesting a hypothetical mechanism that couples transcription to ATP hydrolysis. The addition of S-adenosylmethionine stimulated transcription and diminished the $K(m)$ value not only for ATP but also for the other three rib